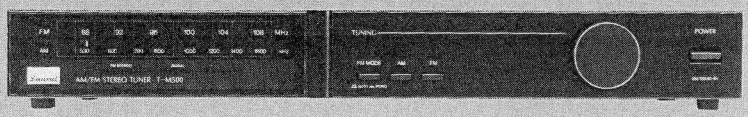
# SERVICE MANUAL

## AM/FM STEREO TUNER

# SANSUI T-M500/M500L



**NOTE**

T-M500 and T-M500L are additional models which external appearances are different from those of T-M55 and T-M55L.

This manual contains OTHER PARTS LIST, PACKING LIST and ACCESSORY LIST in which changed parts are printed with bold-face.

For other parts list, refer to T-M55/M55L service manual previously issued.

Sansui

SANSUI ELECTRIC CO., LTD.

## •SPECIFICATIONS

### T-M500

**FM Section**

| | |
|---|---|
| **Tuning range** | 88 to 108 MHz |
| **Usable sensitivity** | |
| Mono IHF | 10.8 dBf (1.9 μV : T100) |
| DIN | 0.9 μV |
| **50 dB quieting sensitivity** | |
| Mono | 17.0 dBf |
| Stereo | 37.0 dBf |
| **Signal to noise ratio at 65 dBf** | |
| Mono | 75 dB |
| Stereo | 70 dB |
| **Distortion at 65 dBf** | |
| Mono | less than 0.2% at 1,000 Hz |
| Stereo | less than 0.3% at 1,000 Hz |
| **Alternate channel selectivity (at 400 kHz)** | 55 dB |
| **Stereo separation** | 40 dB at 1,000 Hz |
| **Frequency response** | 30 to 15,000 Hz +1.0 dB, —1.5 dB |
| **Antenna input impedance** | 300 ohms balanced<br>75 ohms unbalanced |

**AM Section**

| | |
|---|---|
| **Tuning range** | 530 to 1,600 kHz |
| **Usable sensitivity** | 50 dB/m (316 μV/m) |
| **Signal to noise ratio** | 45 dB |
| **Image response ratio** | 42 dB at 1,000 kHz |

**Others**

| | |
|---|---|
| **Output voltage and impedance** | 600 mV/2.2 kohms |
| **Power requirements** | 120/220/240V<br>50/60 Hz |
| For U.S.A. and Canada | 120V (60 Hz) |
| **Power consumption** | 6Watts |
| **Dimensions** | 345 mm (13-5/8")W<br>46 mm (1-13/16")H<br>234 mm (9-1/4")D |
| **Weight** | 2.0 kg (4.4 lbs) net<br>2.6 kg (5.7 lbs) packed |

### T-M500L

**FM Section**

| | |
|---|---|
| **Tuning range** | 88 to 108 MHz |
| **Usable sensitivity** | |
| Mono IHF | 10.8 dBf (1.9 μV : T100) |
| DIN | 0.9 μV |
| **50 dB quieting sensitivity** | |
| Mono | 17.0 dBf |
| Stereo | 37.0 dBf |
| **Signal to noise ratio at 65 dBf** | |
| Mono | 75 dB |
| Stereo | 70 dB |
| **Distortion at 65 dBf** | |
| Mono | less than 0.2% at 1,000 Hz |
| Stereo | less than 0.3% at 1,000 Hz |
| **Alternate channel selectivity (at 400 kHz)** | 55 dB |
| **Stereo separation** | 40 dB at 1,000 Hz |
| **Frequency response** | 30 to 15,000 Hz +1.0 dB, —1.5 dB |
| **Antenna input impedance** | 300 ohms balanced<br>75 ohms unbalanced |

**AM Section**

| | |
|---|---|
| **Tuning range** | |
| MW | 530 to 1,600 kHz |
| LW | 150 to 350 kHz |
| **Usable sensitivity** | |
| MW | 50 dB/m (316 μV/m) |
| LW | 62 dB/m |
| **Signal to noise ratio** | 45 dB |
| **Image response ratio** | |
| MW | 42 dB at 1,000 kHz |
| LW | 35 dB at 250 kHz |

**Others**

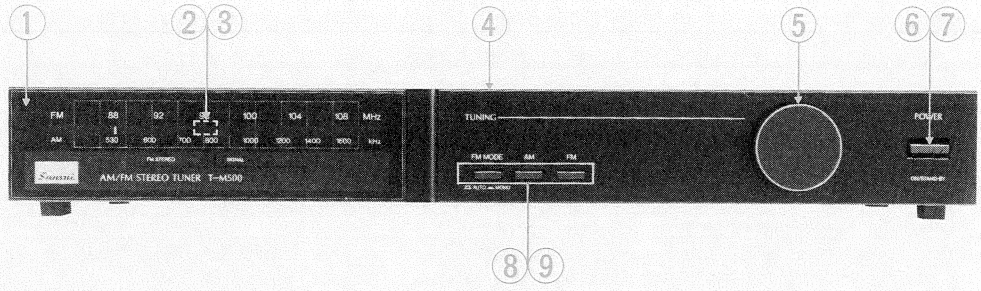
| | |
|---|---|
| **Output voltage and impedance** | 600 mV/2.2 kohms |
| **Power requirements** | 220/240V<br>50/60 Hz |
| **Power consumption** | 6Watts |
| **Dimensions** | 345 mm (13-5/8")W<br>46 mm (1-13/16")H<br>234 mm (9-1/4")D |
| **Weight** | 2.0 kg (4.4 lbs) net<br>2.6 kg (5.7 lbs) packed |

* Design and specifications subject to changes without notice for improvements.

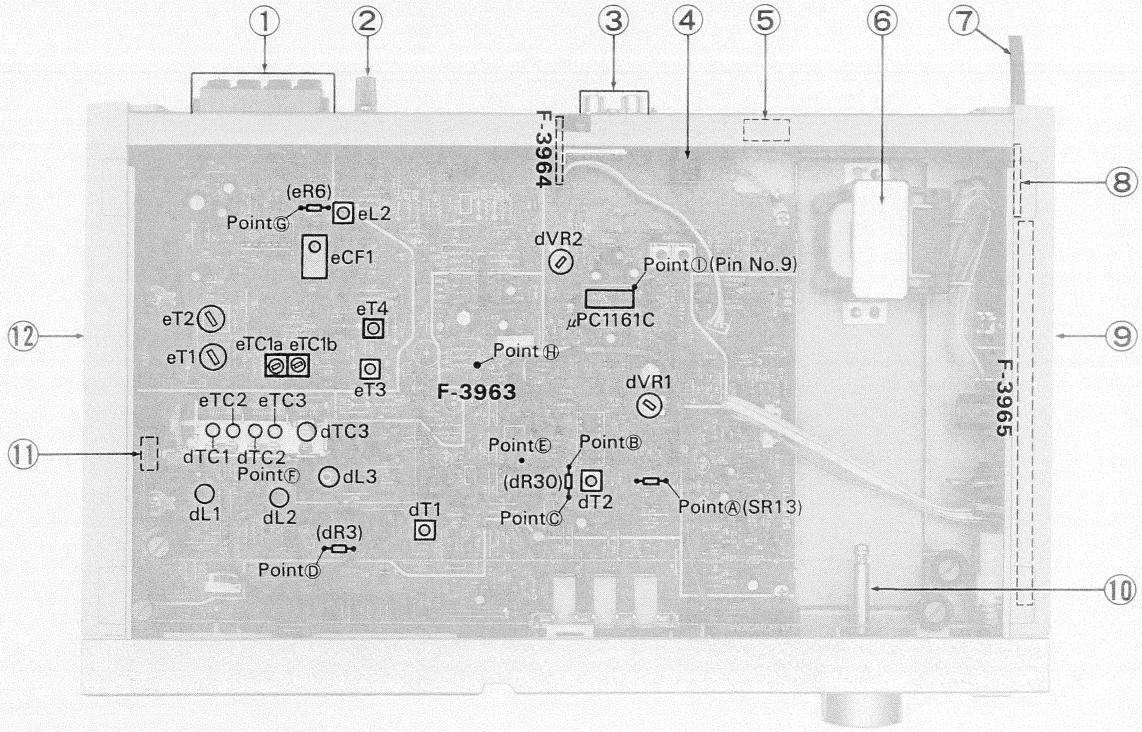
* Due to local laws and regulations, this unit sold in some areas are equipped with variable voltage selectors

# 1. OTHER PARTS

## 1-1. Front View




## 1-2. Top View



Parts List <Front View>

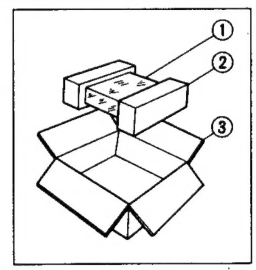
| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 47929000 | Front Panel Ass'y for T-M500 |
| | 47929100 | Front Panel Ass'y for T-M500L |
| 2 | 07856500 | Dial Pointer |
| 3 | 46198900 | L.E.D. Dial Pointer |
| 4 | 47547700 | Bonnet |
| 5 | 47547000 | Tuning Knob |
| 6 | 46370900 | Push SW., POWER |
| 7 | 47736700 | Push Knob, POWER |
| 8 | 46547800 | Push SW., FM/AM (Selector)•FM MODE for T-M500 |
| | 46547900 | Push SW., FM/AM (Selector)•FM MODE for T-M500L |
| 9 | 47547100 | Push Knob, FM/AM (MW)/(LW) (Selector)•FM MODE |

Parts List <Top View>

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 46547300 | Antenna Terminal Board (4P) |
| 2 | 22301510 | GND Terminal |
| 3 | 46438100 | Output Terminal Board (2P) |
| 4 | 46547200 | Mini Jack, COMPU SELECTOR |
| 5 | 07204700 | Slide SW., Voltage Selector <220/240V T-M500L Only> |
| 6 | 15011501 | Power Transformer for T-M500 (XX,SA) |
| | 15011502 | Power Transformer for T-M500 (UL,CSA) |
| | 15011505 | Power Transformer for T-M500L (EU,BS,AS) |
| 7 | 38005400 | Power Supply Cord for T-M500 (XX,SA) |
| | 38004700 | Power Supply Cord for T-M500 (UL,CSA) |
| | 38004300 | Power Supply Cord for T-M500 (BS) |
| | 07204200 | Power Supply Cord for T-M500 (AS) |
| | 38004500 | Power Supply Cord for T-M500L (EU) |
| 8 | 47168610 | AC Cord Cover |
| 9 | 47538000 | Side Panel (Right) |
| 10 | 47177500 | Tuning Unit |
| 11 | 47169300 | Pulley |
| 12 | 47537900 | Side Panel (Left) |

# 2. PACKING LIST

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 47859400 | Vinyl Cover |
| 2 | 47178200 | Styrofoam Packing |
| 3 | 47928400 | Carton Case for T-M500 |
| | 47928500 | Carton Case for T-M500L |




# 3. ACCESSORY LIST

| | Stock No. | Description |
|---|---|---|
| | 46980000 | Operating Instruction for T-M500 |
| | 46980100 | Operating Instruction for T-M500L |
| | 46051700 | FM Antenna |
| | 46186100 | AM Loop Antenna |
| | 07563000 | Antenna Holder |
| | 38103200 | PJP cord |
| | 46267300 | Mini Plug Cord |

**CAUTION**

1. The symbols, UL, CSA, SA, BS, UK, EU, AS and XX (EXPORT) on the parts list and the schematic diagram mean followings respectively.

   UL ..... Manufactured for U.S.A market. (Underwriters Laboratories approved model.)
   CSA..... Manufactured for Canadian market.
   SA ..... Manufactured for South African market.
   BS, UK ..... Manufactured for United Kingdom market.
   EU ..... Manufactured for European market.
   AS ..... Manufactured for Australian market.
   XX (EXPORT)... Standard Version.
   NON MARK..... Common Parts.

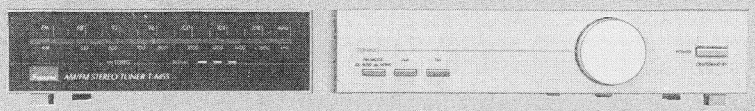
2. Some printed circuit boards are not supplied as the assembled.
   To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.

3. Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.

# SERVICE MANUAL

## AM/FM STEREO TUNER

# SANSUI T-M55/M55L



**CAUTION**

1. Use only replacement parts recommended by the manufacturer.
2. Measure insulation resistance before returning the appliance to the customer to prevent electrical shock.

Sansui

SANSUI ELECTRIC CO., LTD.

## •SPECIFICATIONS

### •T-M55

**FM Section**

| | |
|---|---|
| **Tuning range** | 88 to 108 MHz |
| **Usable sensitivity** | |
| Mono IHF | 10.8 dBf (1.9 μV : T100) |
| DIN | 0.9 μV |
| **50 dB quieting sensitivity** | |
| Mono | 17.0 dBf |
| Stereo | 37.0 dBf |
| **Signal to noise ratio at 65 dBf** | |
| Mono | 75 dB |
| Stereo | 70 dB |
| **Distortion at 65 dBf** | |
| Mono | less than 0.2% at 1,000 Hz |
| Stereo | less than 0.3% at 1,000 Hz |
| **Alternate channel selectivity (at 400 kHz)** | 55 dB |
| **Stereo separation** | 40 dB at 1,000 Hz |
| **Frequency response** | 30 to 15,000 Hz +1.0 dB, −1.5 dB |
| **Antenna input impedance** | 300 ohms balanced<br>75 ohms unbalanced |

**AM Section**

| | |
|---|---|
| **Tuning range** | 530 to 1,600 kHz |
| **Usable sensitivity** | 50 dB/m (316 μV/m) |
| **Signal to noise ratio** | 45 dB |
| **Image response ratio** | 42 dB at 1,000 kHz |

**Others**

| | |
|---|---|
| **Output voltage and impedance** | 600 mV/2.2 kilohms |
| **Power requirements** | 120/220/240V<br>50/60 Hz |
| For U.S.A. and Canada | 120V (60 Hz) |
| **Power consumption** | 6W |
| **Dimensions** | 345 mm (13-5/8″) W<br>46 mm (1-13/16″) H<br>234 mm (9-1/4″) D |
| **Weight** | 2.0 kg (4.4 lbs) net<br>2.6 kg (5.7 lbs) packed |

### •T-M55L

**FM Section**

| | |
|---|---|
| **Tuning range** | 88 to 108 MHz |
| **Usable sensitivity** | |
| Mono IHF | 10.8 dBf (1.9 μV : T100) |
| DIN | 0.9 μV |
| **50 dB quieting sensitivity** | |
| Mono | 17.0 dBf |
| Stereo | 37.0 dBf |
| **Signal to noise ratio at 65 dBf** | |
| Mono | 75 dB |
| Stereo | 70 dB |
| **Distortion at 65 dBf** | |
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| **Antenna input impedance** | 300 ohms balanced<br>75 ohms unbalanced |

**AM Section**

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|---|---|
| **Tuning range** | |
| MW | 530 to 1,600 kHz |
| LW | 150 to 350 kHz |
| **Usable sensitivity** | |
| MW | 50 dB/m (316 μV/m) |
| LW | 62 dB/m |
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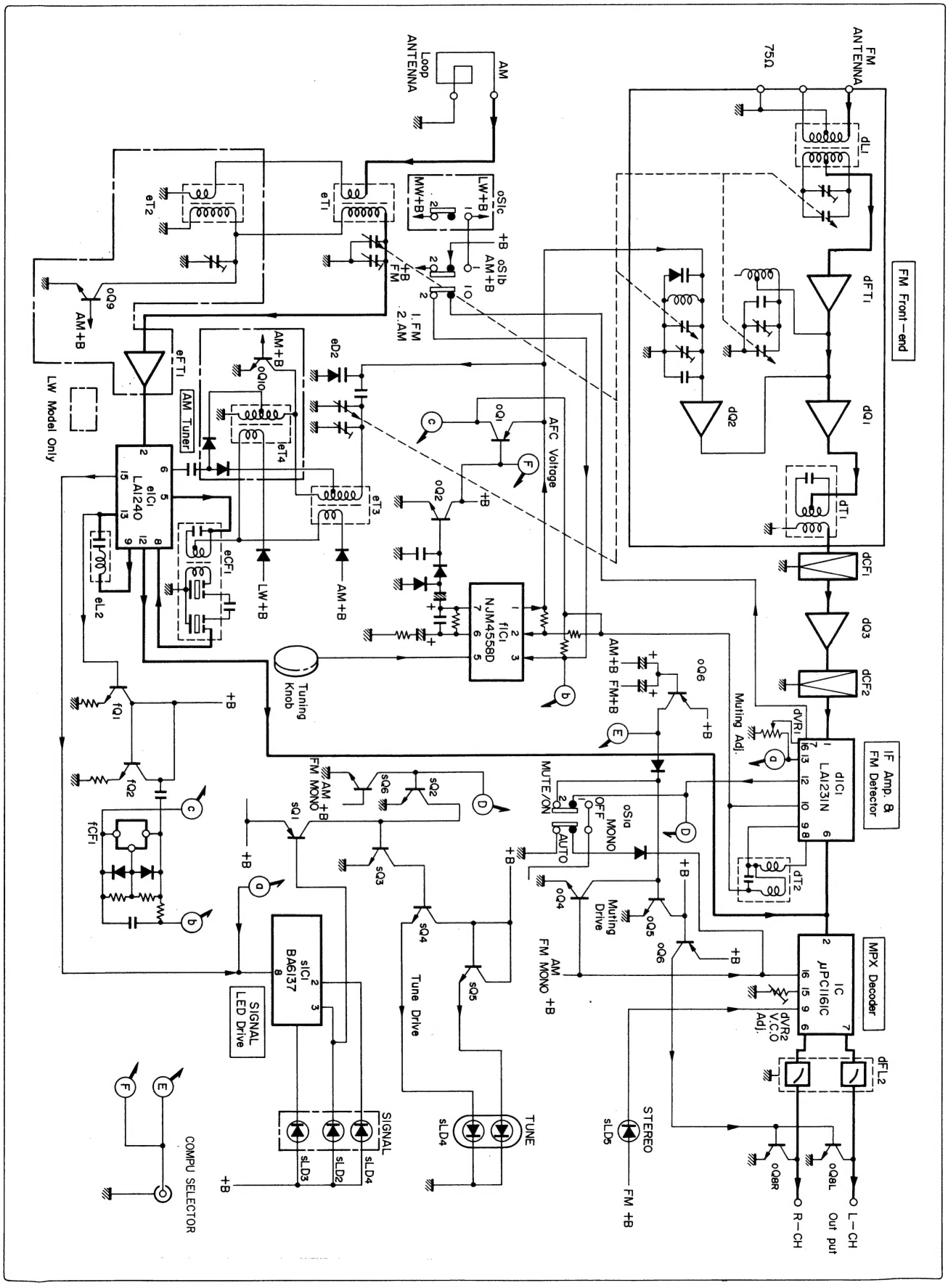
| **Image response ratio** | |
| MW | 42 dB at 1,000 kHz |
| LW | 35 dB at 250 kHz |

**Others**

| | |
|---|---|
| **Output voltage and impedance** | 600 mV/2.2 kilohms |
| **Power requirements** | 220/240V<br>50/60 Hz |
| **Power consumption** | 6W |
| **Dimensions** | 345 mm (13-5/8″) W<br>46 mm (1-13/16″) H<br>234 mm (9-1/4″) D |
| **Weight** | 2.0 kg (4.4 lbs) net<br>2.6 kg (5.7 lbs) packed |

* Design and specifications subject to change without notice for improvements.

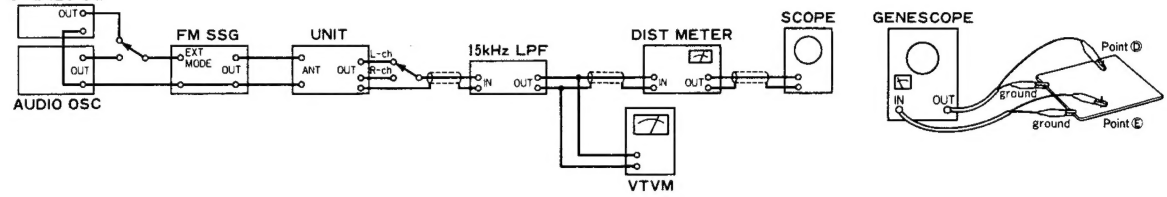
# 1. BLOCK DIAGRAM



# 2. ADJUSTMENTS

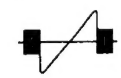
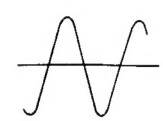
## 2-1. FM Adjustment (See Top View on Page 7)

Fig. 2-1




### 1) FM IF, RF Adjustment and Dial Calibration

**Note:** 1. SELECTOR..... FM
2. FM MODE..... MONO

| STEP | SUBJECT | | FEED SIGNAL FROM | FEED SIGNAL TO | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | IF Coil Adj. | | 98MHz ANT Input 20dBf (14.8dB), 1kHz (100% MOD.), FM SSG | ANT terminal 300Ω | Between Point Ⓐ (sR13, F-3963) & Ground, DC Volt Meter | dT1 (F-3963) | MAX. DC Volt | |
| 2. | Discriminator Coil Adj. In case of using Genescope | 1 | No Input | — | Between Point Ⓑ & Ⓒ DC Volt Meter (Across dR30, F-3963) | dT2 (F-3963) | DC 0V ± 30mV | • Repeat procedures as stated in subject 1 & 2. |
| | | 2 | Output 50dB, Genescope | Point Ⓓ (dR3) | Between Point Ⓔ (dC25, F-3963) & Ground | dT2 (F-3963) | Steep linearity of S-curve. Make symmetrical S-curve. |  |
| | Discriminator Coil Adj. In case of Dist meter | 1 | No Input | — | Between Point Ⓑ & Ⓒ, DC Volt Meter | dT2 (F-3963) | DC 0V ± 30mV | • Repeat procedures as stated in subject 1 & 2. • Since the dT1 has already adjusted, perform only a fine adjustment in this procedure. |
| | | 2 | 98MHz ANT Input 65dBf (59.8dB), FM SSG | ANT terminal 300Ω | OUTPUT L-CH or R-CH, Dist Meter | dT2, dT1 (F-3963) | MIN. THD | |
| 3. | 88 MHz Dial Calibration | | 88 MHz ANT Input 65 dBf (59.8 dB), 1 kHz (100% MOD.), FM SSG | ANT Terminal 300Ω | OUTPUT L-CH or R-CH, SCOPE | dL3 (F-3963) | MAX. Output | •Short between the point Ⓗ (oR3) and the ground. • Repeat procedures as stated in step 3 & 4. |
| 4. | 108 MHz Diatl Calibration | | 108 HMz ANT Input 65 dBf (59.8 dB), 1 kHz (100% MOD.), FM SSG | Same as above | Sam as above | dTC3 (F-3963) | Same as above | |
| 5. | 88 MHz RF Adj. | | 88 MHz ANT Input Minimum value with sine wave 1 kHz (100% MOD.), FM SSG | Same as above | Same as above | dL1, dL2 (F-3963) | MAX. Output |  |
| 6. | 108 MHz RF Adj. | | 108 MHz ANT Input Minimum value with sine wave 1 kHz (100% MOD.), FM SSG | Same as above | Same as above | dTC1, dTC2 (F-3963) | Same as above | |

## 2) FM STEREO Adjustment (See Top View on Page 7)

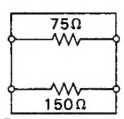
**Note:** 1. SELECTOR..... FM
2. FM MODE..... AUTO

| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|
| | | FROM | TO | | | | |
| 1. | PLL VCO Adj. | 98MHz ANT Input 65dBf (59.8dB), FM SSG, Pilot 19kHz (9% MOD.), R or L MODE 1kHz+Pilot (100% MOD.), STEREO SG | ANT terminal 300Ω | STEREO Indicator | dVR2 (F-3963) | Light indicator | • Adjust the dVR2 within center of lighting level. |
| | PLL VCO Adj. In case of using Freq. counter | 98MHz ANT Input 65dBf (59.8dB), FM SSG, No MOD. | Same as above | Between Point ① (Pin No. 9 of dIC2) & Ground, Freq. counter | dVR2 (F-3963) | 19kHz ± 50Hz | |
| 2. | Muting level Adj. | 98MHz ANT Input 22dBf (16.8dB), FM SSG, Pilot 19kHz (9% MOD.), L or R MODE 1kHz+Pilot (100% MOD.), STEREO SG. | Same as above | STEREO indicator or OUTPUT L-CH or R-CH, VTVM & SCOPE | dVR1 (F-3963) | SREREO indicator turns ON or Output Signal comes out | |

## ◆ ADJUSTMENT FOR FM

- There are two kind in indication of FM SG output attenuator
  1. Attenuator with marking of 75Ω open ..... open indication type.
  2. Attenuator with marking of 75Ω load or close ..... load or close indication type.
- FM SG output level in this FM adjustment are described as open indication type.
- To feed FM signal, a dummy antenna circuit as Fig. 2-2 must be connected between FM SG output and ANT terminal (300Ω) of the unit.

**Fig. 2-2**



Dummy antenna

- The following table shows relations among FM SG attenuator indication (dB), available power ratio (dBf) and antenna terminal voltage (dB/μV) in each indication type.

| | FM SG Attenuator Indication | Available Power Ratio | Antenna Terminal Voltage |
|---|---|---|---|
| Open indication type | 0 dB<br>66 dB | −0.8 dBf<br>65.2 dBf | −6 dB/μV<br>60 dB/μV |
| Load or close indication type | 0 dB<br>60 dB | 5.2 dBf<br>65.2 dBf | 0 dB/μV<br>60 dB/μV |

**•Abbreviations**

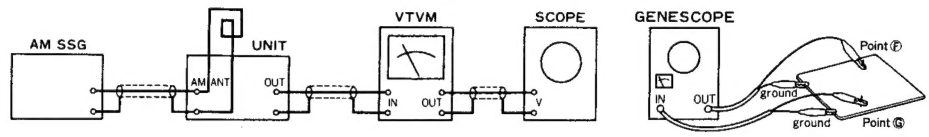
Equipment
- AM FM Generator Oscilloscope ..... Genescope
- AM Standard Signal Generator ..... AM SSG
- FM Standard Signal Generator ..... FM SSG
- FM Stereo Generator ..... Stereo SG
- Oscilloscope ..... Scope
- Audio Oscillator ..... Audio Osc.
- Distortion Meter ..... Dist. Meter

Others
- Antenna ..... ANT.
- Modulation ..... MOD.
- Total Harmonic Distortion ..... T.H.D.

## 2-2. AM Adjustment (See Top View on Page 7)

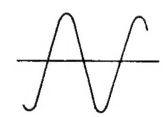
**Note:** 1. SELECTOR ..... AM
2. Connect the AM Loop antenna to the AM antenna terminal and GND terminal.

**Fig. 2-3**




### 1) AM IF, RF Adjustment and AM (MW) Dial Calibration

**Note:** Selector ..... MW <T-M55L>

| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|
| | | FROM | TO | | | | |
| 1. | IF Coil Adj. | Output 60 dB, Genescope | Point Ⓕ (eTC2 F-3963) | Between Point Ⓖ (eR6, F-3963) & Earth | eCF1, eL2 (F-3963) | MAX. Waveform |  |
| 2. | 600kHz Dial Calibration | 600kHz ANT Input 60dB, 400Hz (30% MOD.), AM SSG | ANT terminal | OUTPUT L-CH or R-CH, VTVM & SCOPE | eT3 (F-3963) | MAX. Output | • Short between the Point Ⓗ (oR3) and the ground.<br>• Repeat procedures as stated in step 2 & 3. |
| 3. | 1400kHz Dial Calibration | 1400kHz ANT Input 60dB, 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eTC3 (F-3963) | Same as above | |
| 4. | 600kHz RF Adj. | 600kHz ANT Input 30dB, 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eT1 (F-3963) | Same as above |  |
| 5. | 1400kHz RF Adj. | 1400kHz ANT Input 30 dB, 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eTC2 (F-3963) | Same as above | |

### 2) LW Dial Calibration <T-M55L Only>

**Note:** Selector ..... LW

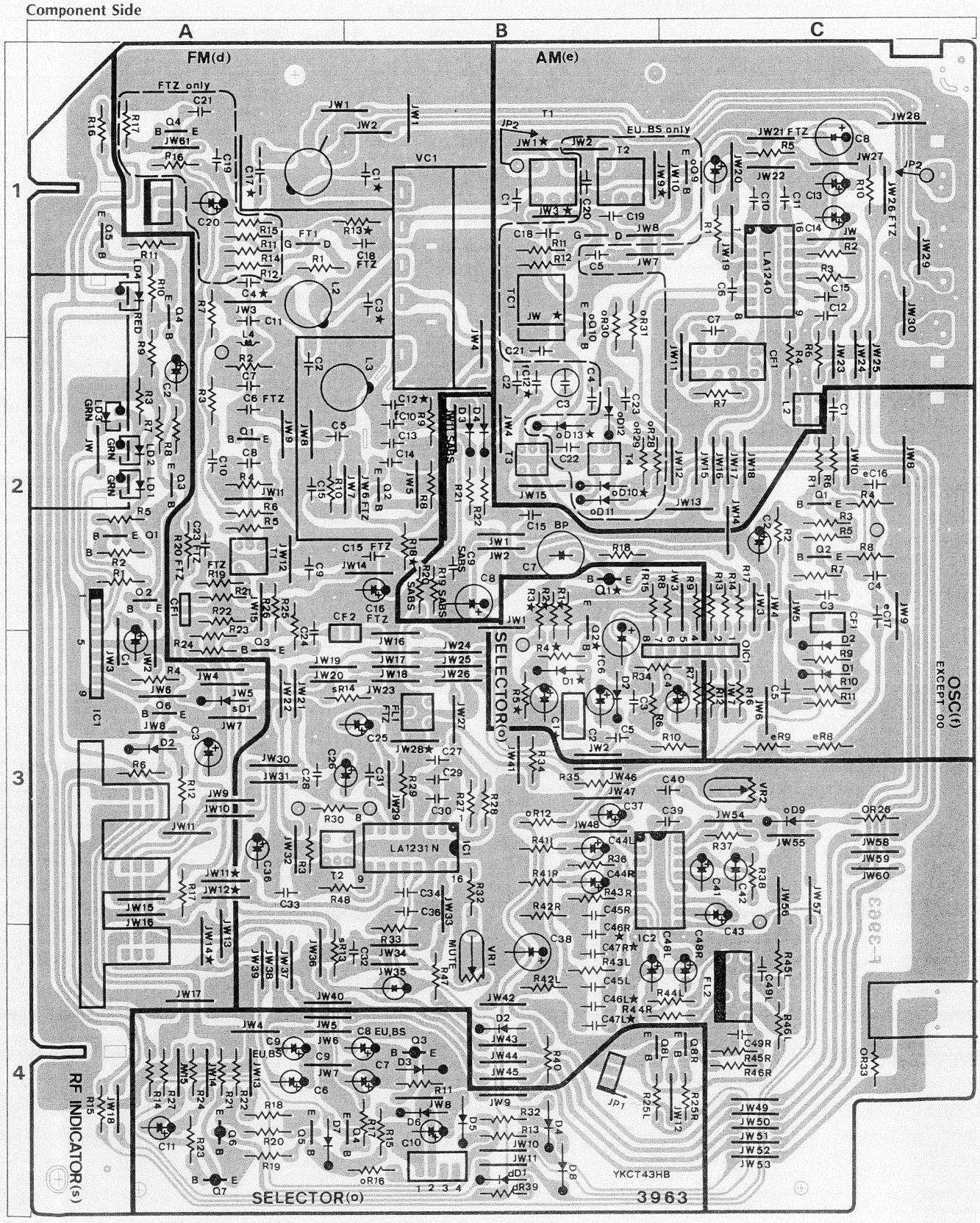
| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|
| | | FROM | TO | | | | |
| 1. | 170kHz Dial Calibration | 170kHz ANT Input 60dB, 400Hz (30% MOD.), AM SSG | ANT terminal | OUTPUT L-CH or R-CH, VTVM & SCOPE | eT4 (F-3963) | MAX. Output | • Short between the Point Ⓗ (oR3) and the ground.<br>• Repeat procedures as stated in step 1 & 2. |
| 2. | 300kHz Dial Calibration | 300kHz ANT Input 60dB, 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eTC1b (F-3963) | Same as above | |
| 3. | 170kHz RF Adj. | 170kHz ANT Input 40dB, 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eT2 (F-3963) | MAX. Output |  |
| 4. | 300kHz RF Adj. | 300kHz ANT Input 40dB, 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eTC1a (F-3963) | Same as above | |

# 3. PARTS LOCATION & PARTS LIST

•Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.

## 3-1. F-3963 FM/AM Tuner Circuit Board (Stock No. 00744101 = T-M55/00744105 = T-M55L)

Component Side



Parts List <F-3963>

| Parts No. | Stock No. | Description |
|---|---|---|
| •Transistor | | |
| dQ1 | 46393201 | 2SC2786 |
| dQ2 | 46392400 | 2SC2668 |
| dQ3 | 46393201 | 2SC2786 |
| •FET | | |
| dFT1 | 46393000 | 2SK192A-Y |
| | or 46393001 | 2SK192A-GR |
| •IC | | |
| dIC1 | 07191200 | LA1231N |
| dIC2 | 03609900 | μPC1161C3 |
| •Diode | | |
| dD1 | 46086000 | 1S1588 |
| | or 03117600 | 1S2473 |
| dD2 | 46086000 | 1S1588 |
| | or 03117600 | 1S2473 |
| dVC1 | 46223300 | Variable Capacitor |
| dCF1 | 09106410 | Ceramic Filter 10.7 MHz |
| dCF2 | 09106410 | Ceramic Filter 10.7 MHz |
| dFL2 | 46151300 | Low Pass Filter (38 kHz) |
| dL1 | 42007200 | FM RF Coil |
| dL2 | 42103400 | FM RF Coil |
| dL3 | 42204000 | FM OSC Coil |
| dL4 | 46541600 | Inductor 2.2μH |
| dT1 | 46369500 | FM IF Coil |
| dT2 | 46547400 | FM Detector Coil |
| dVR1 | 07241300 | 10kΩ(B) S.V.R, Mute Level adj. |
| dVR2 | 07218000 | 6.8kΩ(B) S.V.R, PLL VCO adj. |
| •FET | | |
| eFT1 | 46393000 | 2SK192A-Y <T-M55L Only> |
| | or 46393001 | 2SK192A-GR <T-M55L Only> |
| •IC | | |
| eIC1 | 03608000 | LA1240 |
| eTC1 | 46370700 | Timmer Capacitor 16pF <T-M55L Only> |
| eCF1 | 07250500 | Ceramic Filter (455 kHz) |
| eT1 | 46260600 | AM RF Coil |
| eT2 | 46260700 | LW RF Coil <T-M55L Only> |
| eT3 | 46369300 | AM OSC Coil |
| eT4 | 46369400 | LW OSC Coil <T-M55L Only> |
| eL2 | 46369600 | AM IF Coil |
| •Transistor | | |
| fQ1 | 46392401 | 2SC2668 |
| fQ2 | 46392401 | 2SC2668 |
| •IC | | |
| fIC1 | 46078900 | M5218L |
| •Diode | | |
| fD1 | 46421600 | OA90M |
| fD2 | 46421600 | OA90M |
| •Varactor Diode | | |
| fD3 | 07299300 | 1S2236 |
| fD4 | 07299300 | 1S2236 |
| fC7 | 08460100 | 100μF 6.3V E.B. |
| fCF1 | 46223400 | Ceramic Filter (455 kHz) |
| •Transistor | | |
| oQ1 | 46367201 | 2SA1048 |
| | or 46367001 | 2SA1115 |
| | or 46392001 | 2SA1175 |

| Parts No. | Stock No. | Description |
|---|---|---|
| oQ2 | 46367300 | 2SC2458 |
| | or 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| oQ3 | 46392001 | 2SA1175 |
| | or 46367001 | 2SA1115 |
| | or 46367201 | 2SA1048 |
| oQ4 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| oQ5 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| oQ6 | 46392001 | 2SA1175 |
| | or 46367001 | 2SA1115 |
| | or 46367201 | 2SA1048 |
| oQ7 | 46392001 | 2SA1175 |
| | or 46367001 | 2SA1115 |
| | or 46367201 | 2SA1048 |
| oQ8 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| oQ9 | 46540801 | 2SC2878 <T-M55L Only> |
| oQ10 | 46540801 | 2SC2878 <T-M55L Only> |
| •Diode | | |
| oD1 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD2 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD3 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD4 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD5 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD6 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD7 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD8 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD9 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| oD10 | 03117600 | 1S2473 <T-M55L Only> |
| | or 46086000 | 1S1588 <T-M55L Only> |
| oD11 | 03117600 | 1S1473 <T-M55L Only> |
| | or 46086000 | 1S1588 <T-M55L Only> |
| oD12 | 03117600 | 1S2473 <T-M55L Only> |
| | or 46086000 | 1S1588 <T-M55L Only> |
| oD13 | 03117600 | 1S2473 <T-M55L Only> |
| | or 46086000 | 1S1588 <T-M55L Only> |
| oS1 | 46547900 | Push SW., FM/MW/LW (Selector)•FM MODE <T-M55L> |
| | 46547800 | Push SW., FM/AM (Selector)•FM MODE <T-M55> |
| oJ1 | 46547200 | Mini Jack, COMPU SELECTOR |
| | 46547300 | ANTENNA Terminal Board (4P) |
| •Transistor | | |
| sQ1 | 46367201 | 2SA1048 |
| | or 46367001 | 2SA1115 |
| | or 46392001 | 2SA1175 |
| sQ2 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| sQ3 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| sQ4 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| sQ5 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |
| sQ6 | 46367301 | 2SC2458 |
| | or 46367101 | 2SC2603 |
| | or 46391901 | 2SC2785 |

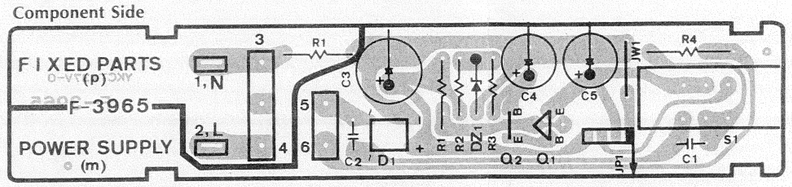
Parts List <F-3963>

| Parts No. | Stock No. | Description |
|---|---|---|
| •IC | | |
| sIC1 | 46197200 | BA6137 |
| •Diode | | |
| sD1 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |
| sD2 | 03117600 | 1S2473 |
| | or 46086000 | 1S1588 |

| Parts No. | Stock No. | Description |
|---|---|---|
| •Light Emitting Diode | | |
| sLD1 | 07250900 | TLG-123A (Green) |
| sLD2 | 07250900 | TLG-123A (Green) |
| sLD3 | 07250900 | TLG-123A (Green) |
| sLD4 | 46095200 | TLR-123 (Red) |

## 3-2. F-3965 Power Supply Circuit Board (Stock No. 00744401)

Component Side



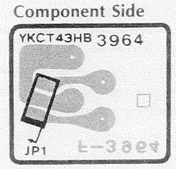

| Parts No. | Stock No. | Description |
|---|---|---|
| •Transistor | | |
| mQ1 | 03083901 | 2SD 313AL |
| mQ2 | 03059501 | 2SC 945 |
| | or 03068301 | 2SC2320 |
| | or 07194801 | 2SC1815 |

| Parts No. | Stock No. | Description |
|---|---|---|
| •Diode | | |
| mD1 | 46273600 | DBB10-B |
| •Zener Diode | | |
| mDZ1 | 46104100 | 05Z13-Z |
| mS1 | 46370900 | Push SW., POWER |

•Note: The circuit boards, F-3964 & F-3648 are not supplied as the assembled. However, the individual parts on the circuit board are provided by orders.

## 3-3. F-3964 Output Terminal Circuit Board

Component Side




Parts List

| Parts No. | Stock No. | Description |
|---|---|---|
| | 46438100 | Output Terminal (2P) |

## 3-4. F-3648 Dial Pointer L.E.D. Circuit Board

Parts List

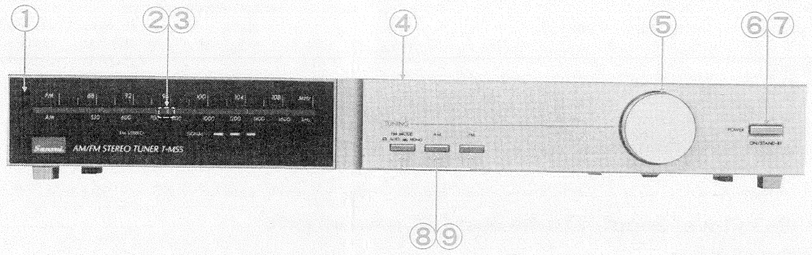
| Parts No. | Stock No. | Description |
|---|---|---|
| •Light Emitting Diode | | |
| sLD5 | 46198900 | SLP-520D |

•Abbreviations

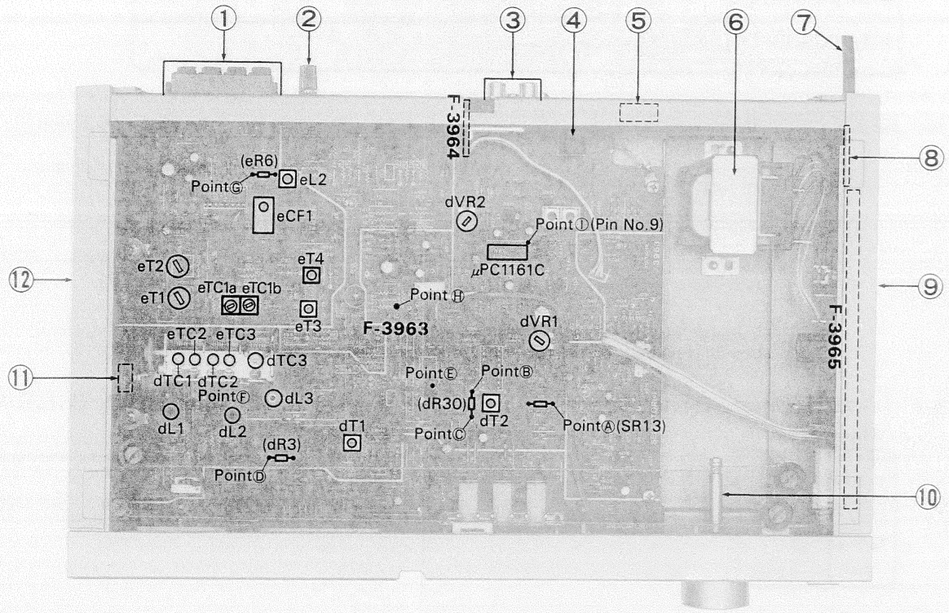
| | | | |
|---|---|---|---|
| C.R. | : Carbon Resistor | E.B. | : Bi-Polar Electrolytic Capacitor |
| S.R. | : Solid Resistor | E.BL. | : Low Leak Bi-Polar Electrolytic Capacitor |
| Ce.R. | : Cement Resistor | Ta.C. | : Tantalum Capacitor |
| M.R. | : Metal Film Resistor | F.C. | : Film Capacitor |
| F.R. | : Fusing Resistor | M.P. | : Metalized Paper Capacitor |
| N.I.R. | : Non-Inflammable Resistor | P.C. | : Polystyrene Capacitor |
| C.C. | : Ceramic Capacitor | G.C. | : Gimmic Capacitor |
| C.T. | : Ceramic Capacitor, Temperature Compensation | V.R. | : Variable Resistor |
| E.C. | : Electrolytic Capacitor | S.V.R. | : Semi Variable Resistor |
| E.L. | : Low Leak Electrolytic Capacitor | SW. | : Switch |

# 4. OTHER PARTS

## 4-1. Front View




## 4-2. Top View




Parts List <Front View>

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 47179500 | Front Panel Ass'y <T-M55> |
| | 47179600 | Front Panel Ass'y <T-M55L> |
| 2 | 07856500 | Dial Pointer |
| 3 | 46198900 | L.E.D, Dial Pointer |
| 4 | 47178400 | Bonnet |
| 5 | 47176900 | Tuning Knob |
| 6 | 46370900 | Push SW., POWER |
| 7 | 47168800 | Push Knob, POWER |
| 8 | 46547800 | Push SW., FM/AM (Selector)•FM MODE <T-M55> |
| | 46547900 | Push SW., FM/MW/LW (Selector)•FM MODE <T-M55L> |
| 9 | 47212800 | Push Knob, FM/AM (MW)/(LW) (Selector)•FM MODE |

Parts List <Top View>

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 46547300 | Antenna Terminal Board (4P) |
| 2 | 22301510 | GND Terminal |
| 3 | 46438100 | Output Terminal Board (2P) |
| 4 | 46547200 | Mini Jack, COMPU SELECTOR |
| 5 | 07204700 | Slide SW., Voltage Selector <220/240V T-M55L Only> |
| 6 | 15011501 | Power Transformer <T-M55> |
| | 15011505 | Power Transformer <T-M55L> |
| 7 | 38005400 | Power Supply Cord <T-M55> |
| | 38004500 | Power Supply Cord <T-M55L> |
| 8 | 47168600 | AC Cord Cover |
| 9 | 47228200 | Side Panel (Right) |
| 10 | 47177500 | Tuning Unit |
| 11 | 47169300 | Pulley |
| 12 | 47228100 | Side Panel (Left) |

# 5. THREADING OF DIAL CORD

- If a dial cord is cut off or slips, replace it by following procedures. As this unit uses 0.5 mmφ cord, please replace it with the same type certainly.
- The length of dial cord is approximately 100cm.

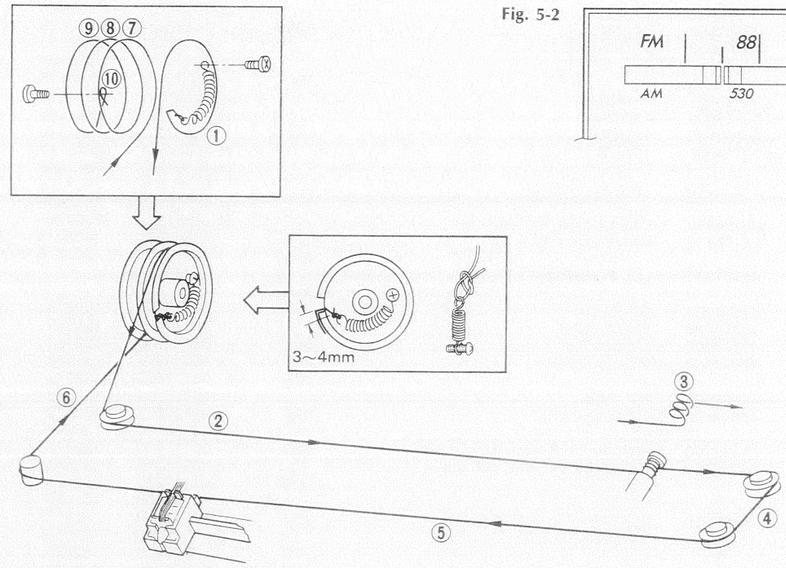
## 5-1. Threading of Dial Cord

Thread the dial cord in numerical order from ① to ⑩ as Fig. 5-1.

- Close the variable capacitor completely.

* Dial Cord (0.5mmφ) ..... (Stock No. 60360530)

Fig. 5-1




## 5-2. Attachment of Dial Pointer

1. Close the variable capacitor completely.
2. Set the dial pointer to the start point, the line at the left end of the dial scale. (Fig. 5-2)

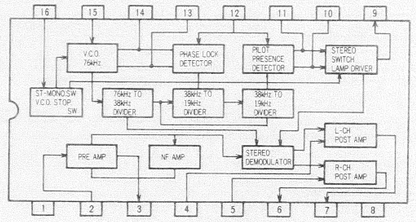
* Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

Fig. 5-2

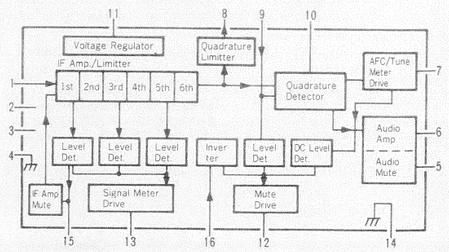



# 6. INTERIOR BLOCK DIAGRAM OF IC

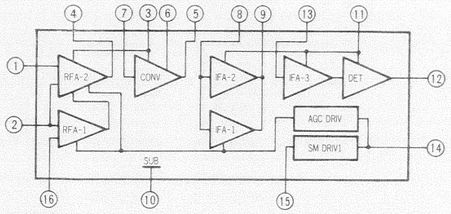
•μPC1161C (MPX IC)



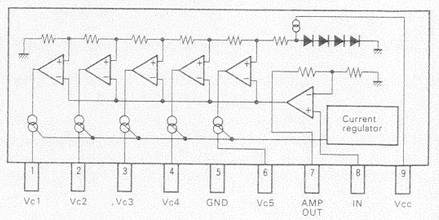

•LA1231N (IF & Quadrature Detector IC)




•LA1240 (AM Tuner IC)



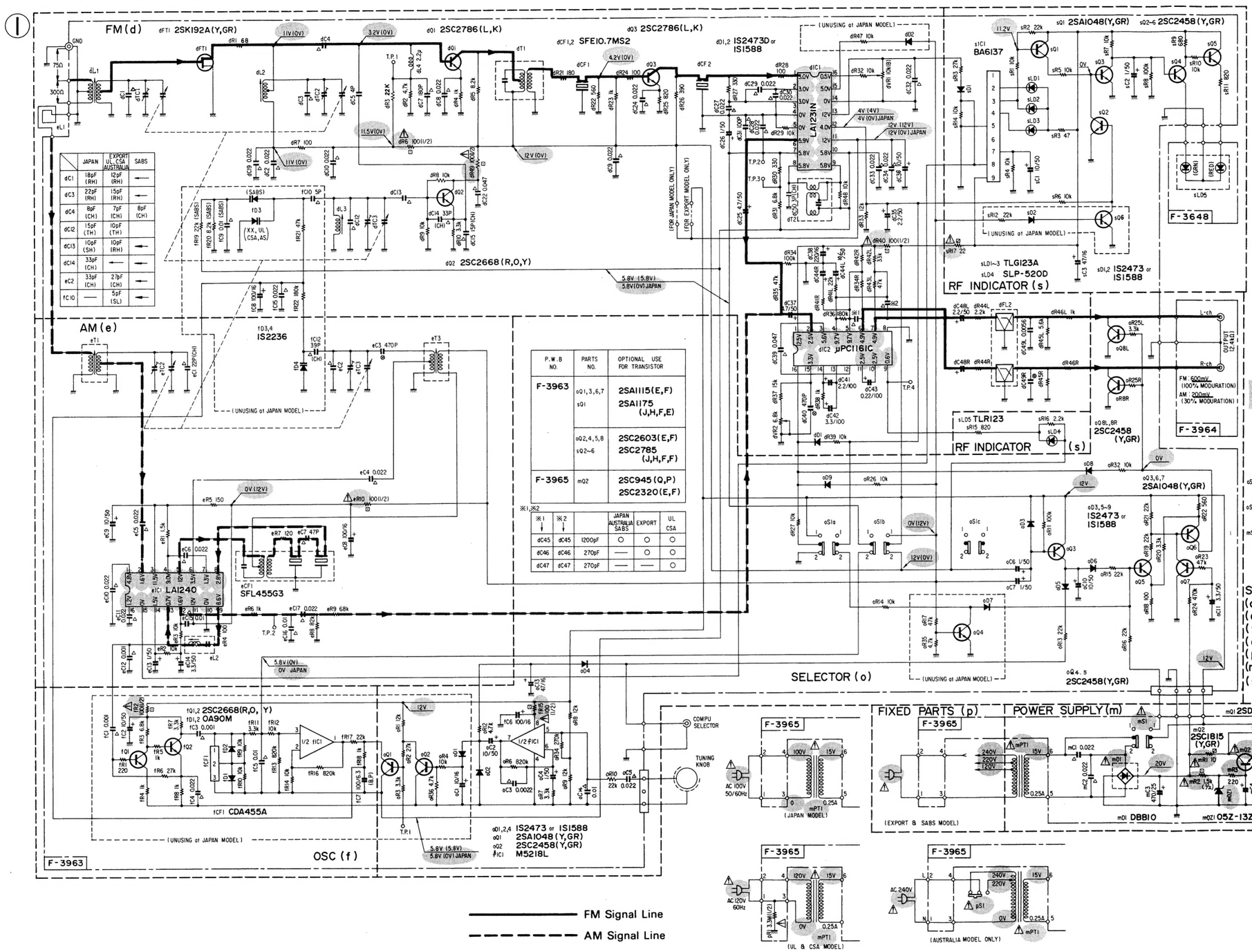

•BA6137 (L.E.D. Drive IC)



| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|

# 7. SCHEMATIC DIAGRAM 7-1. T-M55

*Design and specifications subject to change without notice for improvement.
*La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
*Anderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.




| | JAPAN | EXPORT UL, CSA AUSTRALIA | SABS |
|---|---|---|---|
| dC1 | 18pF (RH) | 12pF (RH) | — |
| dC3 | 22pF (RH) | 15pF (RH) | — |
| dC4 | 8pF (CH) | 7pF (CH) | 8pF (CH) |
| dC12 | 15pF (TH) | 10pF (TH) | |
| dC13 | 10pF (SH) | 10pF (RH) | — |
| dC14 | 33pF (CH) | — | — |
| eC2 | 33pF (CH) | 27pF (CH) | — |
| fC10 | — | 5pF (SL) | — |

| P.W.B NO. | PARTS NO. | OPTIONAL USE FOR TRANSISTOR |
|---|---|---|
| F-3963 | sQ1,3,6,7 | 2SA1115(E,F) |
| | sQ1 | 2SA1175 (J,H,F,E) |
| | sQ2,4,5,8 | 2SC2603(E,F) |
| | sQ2~6 | 2SC2785 (J,H,F,F) |
| F-3965 | mQ2 | 2SC945(Q,P) 2SC2320(E,F) |

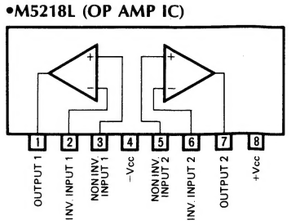
| ※1 | ※2 | | JAPAN AUSTRALIA SABS | EXPORT | UL CSA |
|---|---|---|---|---|---|
| dC45 | dC45 | 1200pF | ○ | ○ | ○ |
| dC46 | dC46 | 270pF | — | ○ | ○ |
| dC47 | dC47 | 270pF | — | — | ○ |

SYMBOL
△ Ceramic Capacitor
(BP) Bi-Polar Electrolytic
⊗ Polystyrene
⊡ Non-Inflammable Resistor
⊡ Fusing Resistor
RESISTORS
Are in ohms, 1/4 Watts, ± 5% Tolerance
Unless Otherwise Noted. k: kΩ, M: MΩ
CAPACITORS
Are in μF, Unless Otherwise Noted. P: pF
TOLERANCE
J: ± 5% G: ± 2% F: ± 1%
Electrolytic Capacitor
Capacitance (μF) / Volt (V)
⚠ is Safety Part.
Use only replacement parts recommended by the manufacturer.
Each D.C. Voltage shows the nominal value in volts at out of tune
FM (AM)
SWITCHES
oS1a : FM MUTING & MODE
1. OFF & MONO
2. ON & STEREO
oS1b,c : SELECTOR
1. AM
2. FM
mS1 : POWER
1. OFF
2. ON

SYMBOL OF FUNCTION
(d) FM
(e) AM
(f) OSC
(o) SELECTOR
(p) FIXED PARTS
(m) POWER SUPPLY
(s) RF INDICATOR

2SC945 2SA1048
2SC1815 2SA1115
2SC2320 2SC2458
2SC2603
2SC2668
2SK192A
2SA313AL
2SA1175
2SC2785
2SC2786
BA6137
M5218L
1S1588
1S2473
05Z13-Z
μPC1161
LA1240
LA1231N
DBB10-B

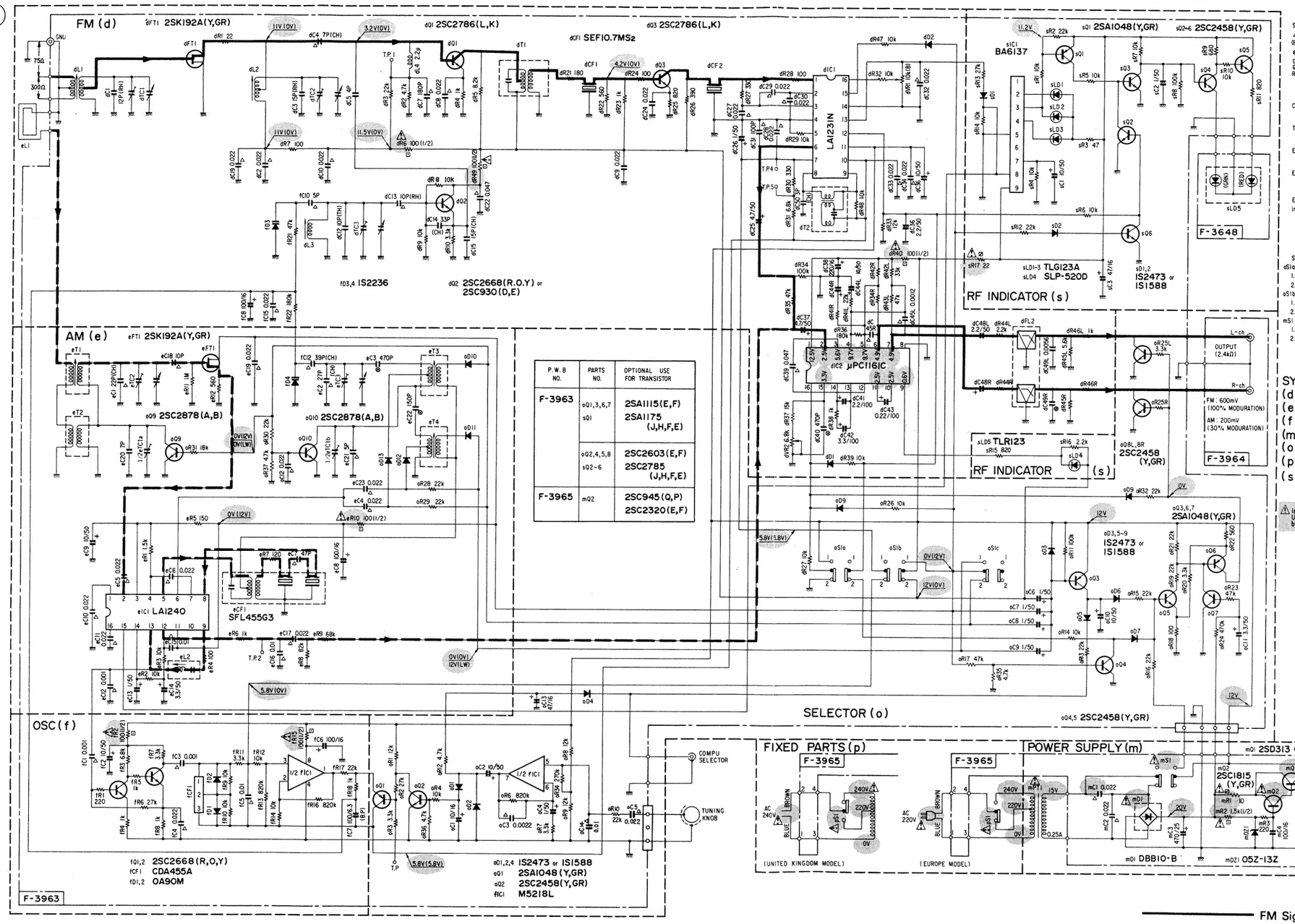
•M5218L (OP AMP IC)



| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|

## 7-2. T-M55L

*Design and specifications subject to change without notice for improvement.
*La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
*Anderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.




| P.W.B NO. | PARTS NO. | OPTIONAL USE FOR TRANSISTOR |
|---|---|---|
| F-3963 | oQ1,3,6,7 sQ1 | 2SA1115(E,F) 2SA1175 (J,H,F,E) |
| | oQ2,4,5,8 sQ2~6 | 2SC2603(E,F) 2SC2785 (J,H,F,E) |
| F-3965 | mQ2 | 2SC945(Q,P) 2SC2320(E,F) |

SYMBOL
△ Ceramic Capacitor
(E,P) Bi-Polar Electrolytic
⊗ Polystyrene
Non-Inflammable Resistor
Fusing Resistor
RESISTORS
Are in ohms, 1/4 Watts, ± 5% Tolerance
Unless Otherwise Noted. k:kΩ, M:MΩ
CAPACITORS
Are in μF, Unless Otherwise Noted. P:pF
TOLERANCE
J:±5% G:±2% F:±1%
Electrolytic Capacitor:
Capacitance (μF) / Volt (V)
EXPORT
XX, UL, CSA, AS, SABS
Each D.C. Voltage shows the nominal value in volts at out of tune
FM (MW)
SWITCHES
sSIa : FM MUTING & MODE
1. OFF & MONO
2. ON & STEREO
sSIb,c : SELECTOR
1. AM
2. FM
mSI : POWER
1. OFF
2. ON

SYMBOL OF FUNCTION
(d) FM
(e) AM
(f) OSC
(m) POWER SUPPLY
(o) SELECTOR
(p) FIXED PARTS
(s) RF INDICATOR

⚠ is Safety Part.
Use only replacement parts recommendr by the manufacturer.

2SC945 2SA1048
2SC1815 2SA1115
2SC2320 2SC2458
2SC2603
2SC2668
2SK192A
2SA313AL
2SA1175
2SC2785
2SC2786
BA6137
M5218L
1S1588
1S2473
05Z13-Z
μPC1161
LA1240
LA1231N
DBB10-B

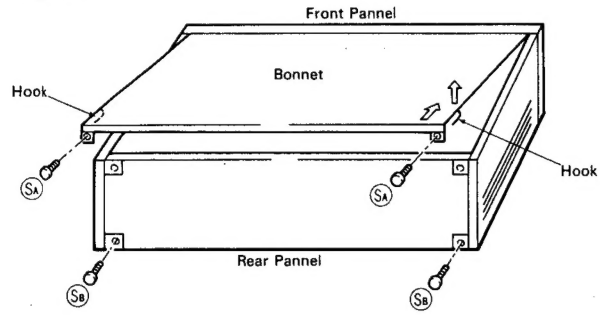
FM Signal Line
AM Signal Line

# 8. MAIN PARTS REPLACEMENT

## A. Bonnet (See Fig. 8-1)

1). Remove two screws Ⓢ_A.
2). Push the rear side of the bonnet to remove the hooks and then remove bonnet.

**Fig. 8-1**



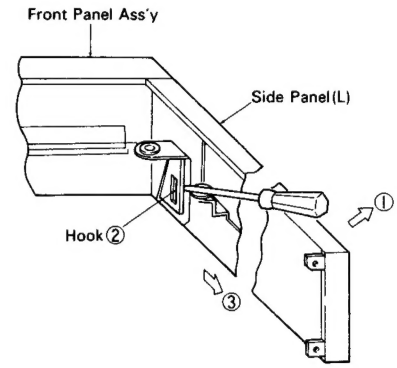

## B. Bottom Plate

1) Remove two screws Ⓢ_B (Fig. 8-1).
2). Push the rear side of the bonnet ot remove the hooks and then remove bottom plate.

## C. Side Panel R (L) (See Fig. 8-2)

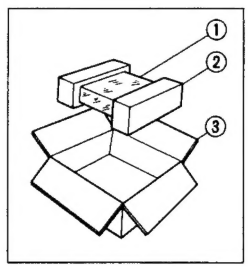
1). Remove bonnet and bottom plate.
2). Shift the position of the side panel R (L) 1.5 cm in the arrow direction ①.
3). Remove the hooks ② of the side panel from front panel and then pull it the arrow direction ③ to remove the side panel R (L).

**Fig. 8-2**




# 9. PACKING LIST

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 07805200 | Vinyl Cover |
| 2 | 47178200 | Styrofoam Packing |
| 3 | 47177000 | Carton Case <T-M55> |
| | 47184400 | Carton Case <T-M55L> |




# 10. ACCESSORY LIST

| Stock No. | Description |
|---|---|
| 46557200 | Operating Instruction <T-M55> |
| 46561500 | Operating Instruction <T-M55L> |
| 46051700 | FM Antenna |
| 46186100 | AM Loop Antenna |
| 07563000 | Antenna Holder |
| 38103200 | PJP Cord |
| 46267300 | Mini Plug Cord |